



Partner Reported Opportunities (PROs)
For Reducing Methane Emissions

Compressors/Engines ☐
Dehydrators ☐
Pipelines ☒
Pneumatics/Controls ☐
Tanks ☐
Valves ☐
Wells ☐
Other ☐

Insert Gas Main Flexible Liners

Applicable sector(s):

☐ Production ☐ Processing ☒ Transmission and Distribution

Partners reporting this PRO: Con Edison Company

Other related PROs: Use of Clock Spring® Repair, Increase Walking Survey from a 5- to 3- Year Basis, Reduce System Pressure

Technology/Practice Overview

Description

Cast iron and unprotected steel piping in underground gas distribution systems have the highest leakage factors of all distribution piping materials. In contrast, plastic pipe has the lowest leakage factor. Where replacement with plastic pipe is not feasible or permitted (e.g. bridge crossings) partners report using flexible plastic insert liners.

Thin-walled plastic liners take advantage of the support offered by the parent piping material and provide the low leakage factors of plastic piping. Plastic liners can be pulled through long lengths of buried piping and bonded at joints to minimize leakage.

Principal Benefits

Reducing methane emissions was:

☐ A primary justification for the project ☒ An associated benefit of the project

Operating Requirements

Plastic liners have pressure and temperature limits based on wall thickness.

Applicability

This practice is applicable to cast iron & unprotected steel transmission and distribution pipelines.

Methane Savings

225 Mcf/yr

Costs

Capital Costs (including installation)

☐ < \$1,000 ☒ \$1,000-\$10,000 ☐ > \$10,000

Operating and Maintenance Costs (Annual)

☒ < \$100 ☐ \$100-\$1,000 ☐ > \$1,000

Payback (Years)

☒ 0-1 ☐ 1-3 ☐ 3-10 ☐ > 10

Methane Emission Reductions

Methane emission reductions come from lower leakage rates associated with plastic liners as compared to the typical leakage through joints in cast iron pipe and external corrosion in unprotected steel piping. Gas Technology Institute (GTI) leakage factors for plastic replacing cast iron or unprotected steel in mains and service lines can be used to estimate methane savings.

Economic Analysis

Basis for Costs and Savings

Reported methane emission reductions of 225 Mcf/yr were associated with retrofitting 1 mile of cast iron main and 1 mile of unprotected steel service lines.

Discussion

This technology pays back immediately due to the lower installation cost. The costs of inserting plastic liners are considerably lower than the costs of excavation and installation of protected steel or plastic pipe.